

## REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated September 5, 2003. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

### Status of the Claims

Claims 1-3 are under consideration in this application. Claims 4-5 are being cancelled without prejudice or disclaimer. Claim 1 is being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim applicants' invention.

### Additional Amendments

The claims are being amended to correct formal errors and/or to better recite or describe the features of the present invention as claimed. All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

### Prior Art Rejections

Claims 1-3 were rejected under 35 U.S.C. § 102(a) as being anticipated by US Pat. No. 6,590,626 to Suzuki et al (hereinafter "Suzuki"), and claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki. These rejections have been carefully considered, but are most respectfully traversed.

The liquid crystal display device of the invention, as now recited in claim 1, comprises a liquid crystal display element having a pair of substrates and liquid crystal sandwiched between a pair of substrates and a backlight unit 3 which is arranged at a side opposite to a display surface of the liquid crystal display element. The backlight unit 3 includes a light guide body 14, a plurality of light sources 20, which are arranged at least along one side surface of the light guide body at a plurality of positions, whose distances from a display surface of the liquid crystal display element are different, each of the plurality of light sources 20 being separated from each other and irradiating light to the liquid crystal display element, a reflection member 22 which,

in conjunction with the light guide body 14, *covers* the plurality of light sources therein along said side surface of the light guide body 14, said reflection member 22 having shielding means 30 (page 8, lines 21-24; Fig. 4) which is arranged between every two light sources of the plurality of light sources to prevent each light source from receiving light directly from any other light source (page 10; lines 19-25), and a housing member which houses the light guide body, the plurality of light sources and the reflection member. In particular, the reflection member 22 and the shielding means 30 are made of **metal**, the housing member is at least partially made of metal, and the reflection member 22 is **thermally connected** with the **metal** portion of the housing member.

The invention has the reflection member 22 and the shielding means 30 both made of metal and the reflection member 22 thermally connected with a metal portion of the housing member to resolve a heating problem depicted in Fig. 6 of the specification, i.e., a correlation between the brightness and the temperature of the cold cathode fluorescent lamp. The cold cathode fluorescent lamp should be maintained below a particular temperature to exhibit the maximum illumination efficiency; otherwise, illumination efficiency sharply drops and the brightness reduces correspondingly as the temperature gets higher than a particular temperature (page 2, line 15 – page 3, line 8). This problem becomes more severe when the number of cold cathode fluorescent lamps increases. The invention efficiently radiates the heat by using metal to make the shielding means, the reflection member and at least a part of the housing member (page 4, line 24 – page 5, line 16; page 11, lines 1-16).

As admitted by the Examiner, Suzuki fails to teach or suggest the metal shielding means, the metal reflection member and the at lease partially metal housing member, or the thermally connecting relationship (page 3, last two paragraphs of the outstanding Office Action). However, the Examiner alleged that these features are obvious to one skilled in the art by virtue of metal's high reflectivity, thermal conductivity, and structural integrity.

Contrary to the Examiner's allegation, Applicants respectfully contend that a person of ordinary skill would not be motivated to modify the relevant components in Suzuki into metal as suggested by the Examiner since, Suzuki specifies the housing 63 as "*a molded component of polyethylene terephthalate (PET) in which silver is evaporated on the inside of the molded component ... so that the lights emitted from the fluorescent tubes 61 are reflected toward the light guide 54 and the reflected lights are condensed on the light guide 54* (col. 7, lines 18-24)," and the separator 64 as "*the molded component of PET on which silver is evaporated. Both of the*

*upper and lower surfaces of the separator 64 facing each fluorescent tube 61 have the function of reflecting the light* (col. 7, lines 36-41)." There is simply no motivation to modify PET coated with silver into just metal in the cited references. Applicants respectfully remind the Examiner that any reliance on "common knowledge and common sense" to modify Suzuki to meet the terms of the claims bears the agency's obligation to cite references to support any such modifications. The Examiner must provide the specific teaching of such a modification on the record, such as statement in the prior art about the features or motivation to modify, to allow accountability.

*To establish a prima facie case of obviousness, the Board must, inter alia, show "some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references."* In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). "The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved." Kotzab, 217 F.3d at 1370, 55 USPQ2d at 1317. .... Recently, in In re Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002), we held that the Board's reliance on "common knowledge and common sense" did not fulfill the agency's obligation to cite references to support its conclusions. Id. at 1344, 61 USPQ2d at 1434. Instead, the Board must document its reasoning on the record to allow accountability. Id. at 1345, 61 USPQ2d at 1435.

See In re Thrift, 298 F.3d 1357.

Suzuki simply is not aware of nor concerned with the correlation between the brightness and the temperature of the cold cathode fluorescent lamp as depicted in Fig. 6. Suzuki merely discloses a problem of transmittance reduction due to contamination of the glass tube in use for a long time. Suzuki only concerns a problem of brightness reduction due to the light emitted from each fluorescent tube passing through the contaminated glass tube plural times (col. 7, line 51 – col. 8, line 33; col. 10, lines 44-54), rather than the characteristics depicted in Fig. 6.

Further, Suzuki specifically teaches that "*any type of fluorescent tube such as a hot cathode fluorescent tube or a cold cathode fluorescent tube may be used as the fluorescent tube*" (col. 3, lines 50-52)," while in contrast the invention specifically uses only **cold** cathode fluorescent tube and controls its illumination efficiency temperature management. It is well

established that a rejection based on cited references having contradictory principles or principles that teach away from the invention is improper.

Applicants respectfully contend that although the invention applies the general heat conductivity characteristic of metal, the invention applies metal to particular components with respect to a cold cathode fluorescent tube to achieve the above-mentioned unexpected results or properties unknown and non-inherent functions in view of the prior art, since the prior art does not inherently achieve the same results. In other words, these advantages would not flow naturally from following the prior art teachings, since the prior art fails to suggest "one reflection surface being substantially perpendicular to the substrates and the other reflection surface being substantially parallel with the substrates and the reflection sheet."

The presence of these unexpected properties, such as using metal reflecting members and shields and to conduct heat so as to maintain the temperature of a cold cathode fluorescent tube below a particular temperature to exhibit the maximum illumination efficiency, is evidence of nonobviousness. MPEP§716.02(a).

*"Presence of a property not possessed by the prior art is evidence of nonobviousness.*

*In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (rejection of claims to compound structurally similar to the prior art compound was reversed because claimed compound unexpectedly possessed anti-inflammatory properties not possessed by the prior art compound); Ex parte Thumm, 132 USPQ 66 (Bd. App. 1961) (Appellant showed that the claimed range of ethylene diamine was effective for the purpose of producing "'regenerated cellulose consisting substantially entirely of skin' whereas the prior art warned 'this compound has 'practically no effect.'").*

Applicants further contend that the mere fact that one of skill in the art could modify the material of the relevant components of Suzuki to meet the terms of the claims is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for one skilled in the art to provide the unexpected properties without the benefit of appellant's specification, to make the necessary changes in the reference device. *Ex parte Chicago Rawhide Mfg. Co., 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).* MPEP§2144.04 VI C. As mentioned, the Examiner must provide written teaching in the prior art to support such modification to allow accountability.

Applicants contend that Suzuki and its combination with other references fail to teach or disclose each and every feature of the present invention as disclosed in independent claim 1. As

such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

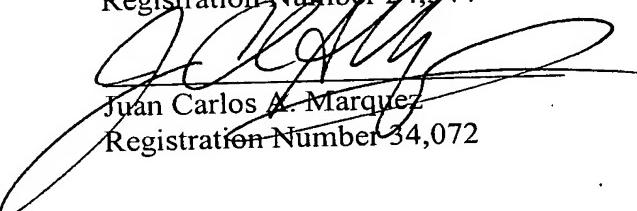
In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

Respectfully submitted,

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